

The Ritual of the Calling of an Engineer

The Iron Ring Ceremony

Objectives for Today

- A Little History
- Explain the Iron Ring Ceremony
 - Significance, meaning
- Provide information about logistics

***How can you tell
an engineer
is an engineer?***

Three Signs of an Engineer

- B.Engg. (Hons)
 - Educational credentials
- Professional Registration
 - Title - Professional Engineer
 - Right to Practice
- Iron Ring

Three Different Agencies

- B.Engg.(Hons)
- Title -P. Eng.
- Iron Ring
- University
- Board of Engineers
- Corporation of the Seven Wardens

The Iron Ring

- Registered symbol of the profession
- Available to:
 - Newly qualified engineers
 - Engineers practicing in Canada
- Must participate in the Ceremony, become “Obligated”

History

- January 25, 1922, Montreal
 - 36th annual meeting of EIC
- Luncheon speaker
 - Civil Engineering Professor Herbert Haultain
 - University of Toronto
- Topic:
 - “The Romance of Engineering”

Haultain Speech

- Urged development of “tribal spirit” among engineers
- Suggested Oath or Creed for young engineers
- Reminder of professional and social responsibility

Engineering as a Profession

- Relatively recent recognition as professionals - a few years
- Only doctors, lawyers, clergy recognized as professionals before
- Professionals - had “higher purpose”
 - Higher standard of conduct expected

Later, Over Dinner

- Haultain, Seven past presidents of EIC
- Met to honour Dr. John Fairbairn
 - outgoing EIC pres., Chief Engineer - CPR
- Formed a committee of seven to act on Haultain's idea
- Became the original Corporation of the Seven Wardens

New Corporation

- Did nothing for almost two years
- Speculation that Robbie Burns Day (January 25), Scotch Whisky and Haggis interfered
 - unsubstantiated
- Late 1923, Haultain intervened

Haultain's Action

- Haultain wrote to Fairbairn
 - Asked what had been done
 - Wondered if “it would be possible to interest Kipling in this.”
- Fairbairn agreed
- Asked Haultain to write to Kipling
 - Haultain wrote in October 1923

Rudyard Kipling

- “Dean” of English literature
 - Revered in countries with ties to Great Britain
 - Nobel prize for literature in 1907
- Visited Canada in 1907 - via CPR
 - Learned about CPR’s search for water and subsequent discovery of Natural Gas
 - labeled Medicine Hat - the city with “All Hell for a Basement”

Kipling's Response

- Within three weeks!
- Replied with “The Ritual of the Calling of an Engineer”
- Added notes that are still part of the ceremony today
- Suggested “obligation” rather than “oath”

The First Ceremonies

- April 25, 1925
 - six prominent engineers, including Dr. Fairbairn
- A week later
 - administered to 14 engineers

Fairbairn's Next Step

- Wrote to Kipling
 - expressed appreciation of the Seven Wardens
 - sent a sample of the ring
 - remarked it should be turned out with a better finish

Kipling's Reply

“But the ring is now an Ancient Landmark, not to be deviated from. It is an allegory in itself. It is rough, as the mind of a young man. It is not smoothed off at the edges any more than the character of the young. It is hand-hammered all around and the young have all their hammerings coming to them. It has neither beginning nor end, any more than the work of an engineer, or as we know, Space itself. It will cut gold if worn next to it; thus showing that one had better keep one's work and one's money-getting quite separate”

And so...

- The Ring stayed as it was
 - Kipling's remarks added to the Ceremony
- Kipling's statement
 - “one had better keep one's work and one's money- getting quite separate”
 - Captures the essence of the obligation of professional practice

75 years later

- 24 Camps now established wherever universities graduate engineers
 - Camp 6 - Edmonton - 1930
 - Camp 18 - Calgary 1968
- First Calgary ceremony - 1969
- 8000+ engineers obligated in Calgary

Calgary's Ancient Landmarks

- Historical Items - Used in the Ceremony
 - survey chains - used by early land surveyors
 - hammer - used on Alaska Highway construction
 - symbolic anvil, made from 1883 CPR rail
- Artifacts - Reminders
 - History - Transit used in early survey work
 - Disasters - Peace River Bridge collapse, TransCanada Pipeline explosions, Ocean Ranger sinking

What about that Bridge?

- Quebec Bridge company
 - Financially challenged
 - Already had preliminary plans - Phoenix Bridge company
 - Hired Theodore Cooper, an experienced consulting engineer, in 1899, to review bids
 - Wanted to award the contract to Phoenix
 - concerned about cost

The Bridge - continued

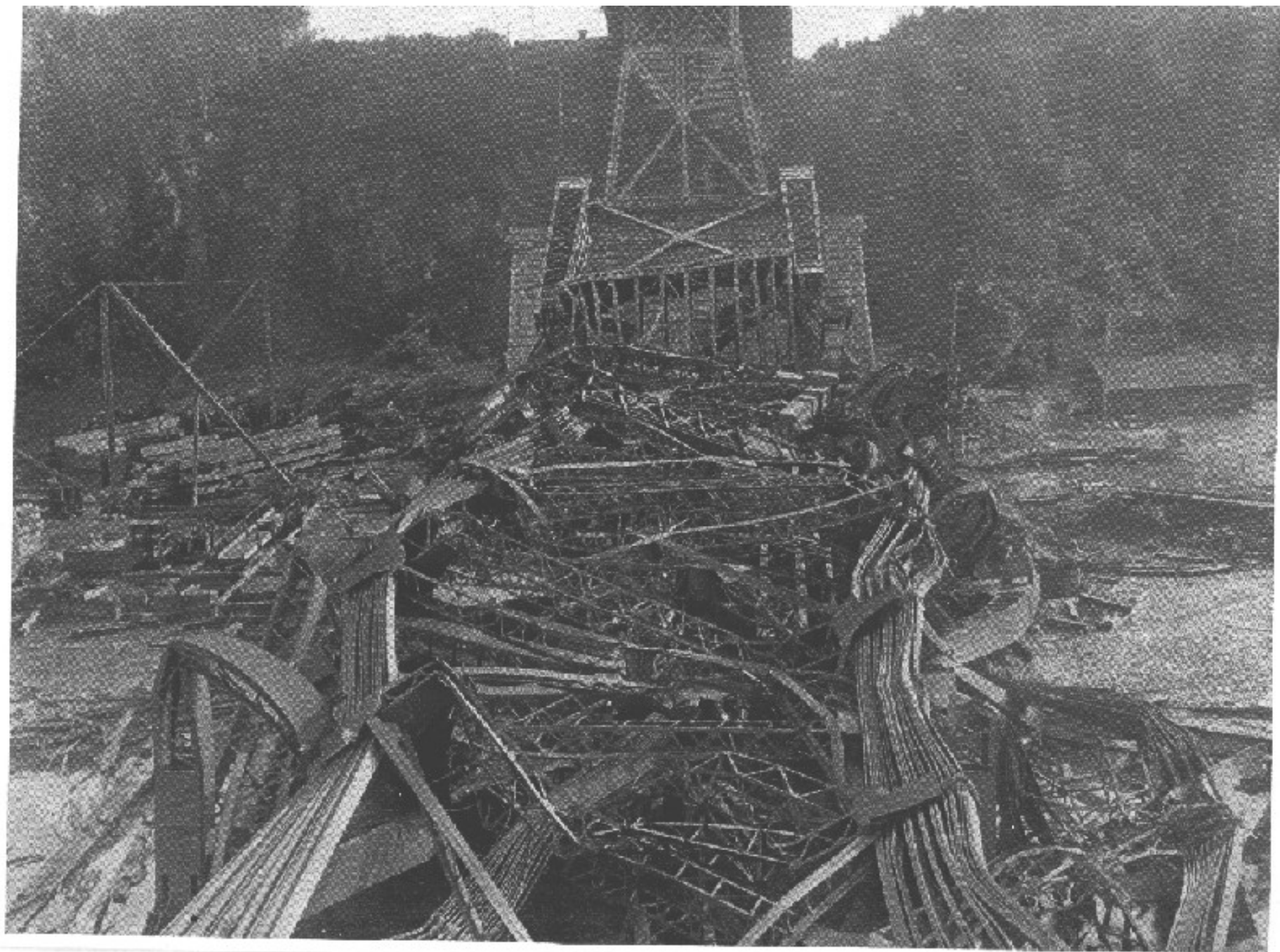
- Cooper approved a proposed cantilevered structure - “best and cheapest”
 - Appointed for the duration of the work, 1900
- Extended from 1600 to 1800 feet
 - Avoid ice, speed construction
 - Modified design, higher unit stresses
 - unusual design and scale, but no tests (no \$)

The Bridge - continued

- 1903 - Canadian Government backs project
- Time pressure - load and unit stresses under revised specs not checked
- Cooper now 64, in poor health
 - did not visit site again
 - Offered resignation in 1904, not accepted
 - 1905 - Norman McLure, a recent graduate engineer, represents Cooper on site

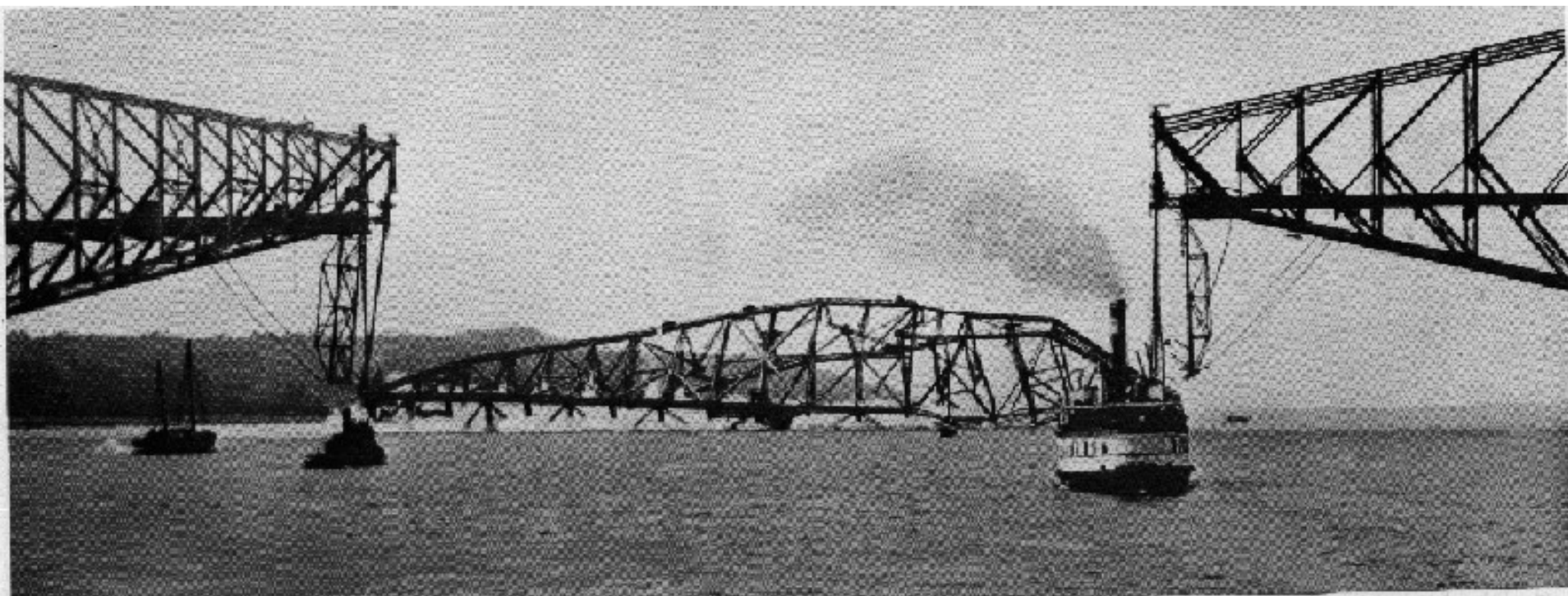
More About the Bridge

- Feb 1906
 - actual weights exceed estimates - 18% higher
 - Unit stresses up 7-10%
 - Fabrication well underway, not stopped
- Summer 1907
 - Bending in lower chord compression members
 - Increasing concerns through August
 - Phoenix Bridge Company in denial
- And then, on August 29, 1907....



The Result

- Chords buckled and the bridge collapsed
- Eighty-six men were on the bridge
- Eleven survived
- Brunt of the blame placed on Cooper
- New bridge built in 1917,
 - two and one half times heavier
 - during construction, in 1916...



Are the Rings From the Bridge?

- No! - and they never were
 - Materials unsuitable for ring-making
 - well-established “urban myth”
 - First rings made by WW1 veterans
 - Christie Street Veterans Rehabilitation Hospital in Toronto
- The collapse would have been on the minds of the original Wardens
 - concern captured in “spirit” of the obligation

The Iron Ring

- Symbolizes the Obligation
 - commitment to a standard of conduct
- Not a symbol of qualification as an engineer
 - B.Engg, P.Eng signify qualification

The Obligation

I _____, in the presence of these my betters and my equals in my Calling, bind myself upon my Honour and Cold Iron, that, to the best of my knowledge and power, I will not henceforward suffer or pass, or be privy to the passing of, Bad Workmanship or Faulty Material in aught that concerns my works before mankind as an engineer, or in my dealings with my own Soul before my Maker.

My Time I will not refuse; my Thought I will not grudge; my Care I will not deny towards the honour, use, stability and perfection of any works to which I may be called to set my hand.

My Fair Wages for that work I will openly take. My Reputation in my Calling I will honourably guard; but I will in no way go about to compass or wrest judgement or gratification from any one with whom I may deal. And further, I will early and warily strive my uttermost against professional jealousy and the belittling of my working-colleagues in any field of their labour.

For my assured failures and derelictions I ask pardon beforehand of my betters and my equals in my Calling here assembled, praying that in the hour of my temptations, weakness and weariness, the memory of this my Obligation and of the company before whom it was entered into, may return to me to aid, comfort and restrain.

Upon Honour and Cold Iron, God helping me, these things I purpose to abide.

The Iron Ring Ceremony

- Voluntary
- Kipling's words throughout
 - Not a religious Ceremony
 - language reminds us of religion because of its age
 - meant to be generic - should be taken that way

Websites

Quebec Bridge:

[www.civeng.carleton.ca/Exhibits/Quebec_Bridge/
intro.html](http://www.civeng.carleton.ca/Exhibits/Quebec_Bridge/intro.html)

Corporation of the Seven Wardens:

www.ironring.ca